JAPAN · ECONOMIC · INSTITUTE

JEI

REPORT

A Two-Part Report: A and B

NO. 1A January 10, 1992

ENVIRONMENTAL DEVELOPMENTS OFFER OPPORTUNITIES FOR JAPAN

SUMMARY

Environmental concerns that have garnered newspaper headlines in the past four years or so, such as global warming and ozone depletion, have coincided with Japan's interest in taking a larger role in international affairs, including in environmental matters. Upcoming conferences offer diverse opportunities for Tokyo to exercise leadership; they also set the stage for potential areas of U.S.-Japan cooperation and conflict.

At both the upcoming Conference on International Trade in Endangered Species and the United Nations Conference on Environment and Development Japan has indicated an interest in moderating the interplay between developed and developing countries. The degree of involvement could signal how much leadership Tokyo is willing to assume in environmental matters. Influence is possible without leadership, however.

Japan's plans for international involvement in environmental issues rest strongly on its foreign aid program and its ability to serve as a role model, particularly in the areas of energy efficiency and air pollution control. Through such initiatives Tokyo hopes to increase its domestic and international impact on areas of potential climate change.

International Diplomacy in Environmental Matters

When several significant environmental conferences were scheduled for 1992 about two years ago, the year had all the trappings of a period in which the environment might enjoy abundant, constructive attention. About that same time Japan began positioning itself to take more of a leadership role on some global environmental concerns -- particularly those related to climate change. Its position of influence as one of the world's strongest economies and most efficient energy users as

well as one that has dealt fairly successfully with a majority of its air pollution problems could serve to alter Japan's previous image among environmentalists as an ecological outlaw. Recent official and corporate interest in environmental issues also has improved that country's credibility.

Concern over environmental issues always has tended to play better in good times than in bad. Disheartening economic statistics from Washington, Tokyo and several European countries as well as events following the dissolution of the Soviet Union very easily could demand a more immediate response than long-term environmental concerns. Given the significance of the various international conferences to be held this year, the amount of attention diverted to the environment could indicate the degree to which ecological problems have become part of mainstream policy concerns.

Japan-U.S. Discussions - Clues that environmental matters might be rapidly downgraded in economic hard times have cropped up in reports about President Bush's early January visit to Japan. Before trade -- especially the huge bilateral imbalance in motor vehicles and parts -- became the main theme of the president's rescheduled trip, the environment had been on the agenda as an area of potential transpacific cooperation. Although as of this writing the president had not yet arrived in Japan, U.S. officials reportedly have urged Tokyo to revise the rules on automotive emissions testing and other certification procedures to hold down the cost of U.S.-made vehicles in Japan. The dispute, according to some sources, has less to do with actual emissions -- particularly since U.S. officials contend that emissions standards are the same in both countries -- and more with whether U.S. tests and sampling methods could be accepted as equivalent to Japanese procedures. Since Mr. Bush will have in tow the leaders of Chrysler Corp., Ford Motor Co. and General Motors Corp. when he arrives in Japan, the attention paid to the emissions testing dispute could sour planned announcements of cooperation on environmental ventures. Amelioration of the situation or further rancor could result, depending on whether the Big Three officials follow up on an invitation to a mid-January seminar on the global environment in Tokyo. The meeting is to feature discussions on cooperation in developing more environmentally benign cars. Among the participants will be the presidents of Toyota Motor Corp. and Nissan Motor Co., Ltd. as well as several environmental officials.

Even the somewhat theoretical proposals made by Japanese officials in late December for bilateral environmental cooperation contain room for disagreement. One proposal refers diplomatically to "promotion" of an upcoming United Nations Conference on Environment and Development. Washington's reluctance to go along with the other major industrialized countries on climate change proposals is most likely the reason Tokyo has chosen the word "promotion" for its proposal rather than urging Americans to agree to a successful conclusion of the UNCED meeting, which is to feature not only climate change concerns but a broad range of environment and sustainable development topics (see below).

Japan's suggested list of areas of cooperation also refers to protection of endangered species, an issue over which U.S. officials have threatened trade sanctions in the past year in a bid to force Tokyo to agree to honor terms of the Conference on International Trade in Endangered Species and to accept a moratorium on the use of large drift nets in international waters. Whether this item was included to show how much Tokyo had compromised on environmental issues with the United States in the past year remains unclear.

Another potentially painful area of cooperation proposed by Japan -- preservation of tropical rain forests -- raises a question of how successful that country thinks new official and corporate environmental policies will be in countering international criticism that Japan's construction habits have contributed to the despoiling of tropical forests. Other issues proposed for cooperation are less

The JEI REPORT (ISSN 0744-6489) is published weekly except for the New Year, Memorial Day, Labor Day, Thanksgiving and Christmas holiday weeks for $40 per year by the Japan Economic Institute of America, 1000 Connecticut Avenue, N.W., Washington, D.C. 20036. Second class postage paid at Washington, D.C. POSTMASTERS: Send address changes to JEI REPORT, 1000 Connecticut Avenue, N.W., Washington, D.C. 20036.

contentious: prevention of natural disasters, surveys on global changes, and joint projects involving the Japan Overseas Cooperation Volunteers and the Peace Corps.

The latter notion most likely will resurface at a mid-January meeting in Hawaii between American and Japanese officials involved in foreign aid. The agenda at that meeting includes possible cooperation in creating a network of environmental resource centers in developing countries. Initially these centers would focus on domestic environmental goals; later their mission would include regional projects. Japan already has worked to create sectorally affiliated resource centers in various countries through the Japan International Cooperation Agency (see Table 1). A U.S. proposal features a two-year study to look at these and other existing centers to make sure that the proposed resource bases would not be duplicative. Funding for four initial centers is eyed at 50-50, with each side chipping in a $100 million start-up contribution.

Cooperation already is proceeding at both the government and the nongovernment levels to monitor global climate change and to develop solutions. One of the latest tie-ups features participation by Japanese researchers in a monitoring project that began in September to assess the output of carbon dioxide and nitrogen dioxide in the East Asia region. An airplane contributed by this country's National Aeronautics and Space Administration plus one chartered by Japan's Institute for Environmental Studies will try to determine the output and diffusion of CO_2, NO_2, sulfur dioxide, methane and chlorofluorocarbons, gases thought to contribute to climate change -- the greenhouse effect -- by warming earth's lower atmosphere.

A panel coordinated by the World Resources Institute, a Washington, D.C.-based nongovernmental organization, is conducting parallel studies with the Global Industrial and Social Progress Research Institute, which is affiliated with the Ministry of International Trade and Industry, on how to accelerate the diffusion of environmentally sound technologies to developing countries. Cross-membership on each country's panel of academics, business representatives and environmental analysts helps to keep both groups informed of the other's efforts prior to joint analysis of the findings. American participants have suggested that private-sector involvement might help surmount U.S. institutional suspicions about the trade impact of shared information. In return, they have indicated, their Japanese counterparts might benefit from learning more of the ins and outs of international political follow-through.[1]

At the legislative level representatives of the Diet routinely meet with members of Congress and their European counterparts under the auspices of the Global Legislators' Organization for a Balanced Environment. GLOBE reviews similarities and differences in the respective countries on environmental issues and has as one goal the coordination of approaches to international problems. An early February meeting in Washington will feature Japanese-proposed discussions of financial mechanisms that might encourage developing countries to pursue sustainable development. Among the ideas to be covered are environmental taxes, debt-for-nature swaps, and foreign aid, both multilaterial and bilateral. U.S. legislators have proposed talks on the inclusion of natural resource and environmental costs in accounting methods. Other topics will deal with propping up environmental financing through arms reduction and the issues to be addressed by the June UNCED meeting.

These examples of cooperation and Japan's record of energy efficiency are two reasons Japan is losing its outlaw image when compared environmentally with other countries. The irony has not been lost on some environmentalists familiar with Japan. Richard Forrest of the National Wildlife Federation, who wrote a critical 1989 study *Japanese Economic Assistance and The Environment: The Need for Reform*, commented recently, "There's definitely a consensus by people who are watching the international environmental scene. . . . People seemed to think Japan was the worst but about a year ago it became clear that the balance had tipped. Japan is clearly not the worst. That's the United States."[2] Although Mr. Forrest acknowledges that Japan's taking of more than 300 whales a year still angers environmentalists who fear depletion of whale species, he said that the broad picture -- one

Table 1: **Selected Environment-Linked Programs Funded By Japan's Foreign Aid**

	Training in Japan	Dispatch of Experts	JOCV*	Package Projects**	Feasibility Survey	Grant Aid
Forestry Protection			(2)		Tunisia Colombia Liberia Bolivia	
Forestry Industry	Community forestry (13) Agroforestry (15) Management technology (17) Soil/erosion (5) Forest product research (11)	Indonesia (1) Qatar (1) Yemen (2) U.A.E. (6) Senegal (1) Tanzania (2) Chile (1) Uruguay (2)	(11) to replant (20) in forest management	Brunei Indonesia (2) Malaysia (2) Philippines Thailand Kenya Paraguay Papua New Guinea China Brazil	Uruguay management five-year plan	
Sea pollution Prevention	Marine protection (4)	Indonesia (1)			U.A.E. study of marine pollution	
Subterranean Water Development		China (2) Indonesia (2) Pakistan (6) Madagascar (2)	(2)		Bhutan China Nepal Philippines (2) Egypt Jordan Madagascar Nigeria Dominica Honduras	India Pakistan Zaire Central Africa Malawi Bolivia
Water Resource Protection	River and dam institute (10)	Malaysia (1)				
Disaster Prevention	Calamity response seminars (43) Volcanology school (14)	Cook Islands (5) Indonesia (9) Philippines (4) Singapore (1) Algeria (3) Egypt (3) Zaire (3) Brazil (1) Colombia ((2) Costa Rica (2) Honduras ((1) Peru (1) Venezuela (8) ESCAP Thailand (1)		Indonesia volcano, erosion protection Peru/Japan 'quake response center Mexico earthquake response center	South Korea river protection plan Philippines traffic plan for disasters Mauritius landslide protection plan Brazil flood control project Venezuela river conservation plan	Pakistan weather observation network Nepal flood protection Maldives shoreline preservation
Living Environment (sewer, water systems)		Philippines (1) Peru (1) Nepal (3)			Bangladesh China Laos Malaysia (2) Philippines (3) Brazil	Philippines Manila flood control plan Bangladesh storm water control plan Honduras downstream development plan

*Japan Overseas Cooperation Volunteers
**Package projects include a mixture of grants and technical assistance to help establish a research center.

Source: Japan International Cooperation Agency

that takes into account America's use of approximately 25 percent of the world's energy supplies for nearly 5 percent of the world's population -- has revised the perspective on Japan's overall environmental practices. At some of the significant environmental conferences this year Japan will continue to be portrayed as part of the problem and at others as part of the solution.

Japan as Host for CITES Meeting - Japan's exceptions to generally accepted global norms against trade in or hunting of certain species, such as whales and some types of sea turtles, have come under much criticism from environmentalists.[3] For this reason the desire to serve as host of a meeting of the Conference on International Trade in Endangered Species would seem masochistic unless a country has an alternative agenda or wants to underscore evidence of change. Either is possible in the case of Japan, which will serve as host for a CITES meeting in Kyoto in March.

At various recent environmental regional conferences Japanese officials have expressed an interest in protecting the sovereign rights of developing countries, which contend that global environmental concerns often represent industrialized countries' interference in their domestic affairs. At the March CITES meeting some developing countries in Africa are expected to push for fewer limits on the trade in ivory, which was placed on the most restrictive CITES list (Appendix I) at an October 1989 meeting. These countries contend that their work to protect elephants from poachers who were decimating herds elsewhere in Africa should not be punished by disallowing their sale of ivory from selectively culled animals, particularly since sales are used to reinforce protection programs. Although Tokyo voted for the Appendix I listing, some observers have suggested that the vote was a factor in Japan's bid to serve as host of the 1992 CITES meeting and not a statement of principle.

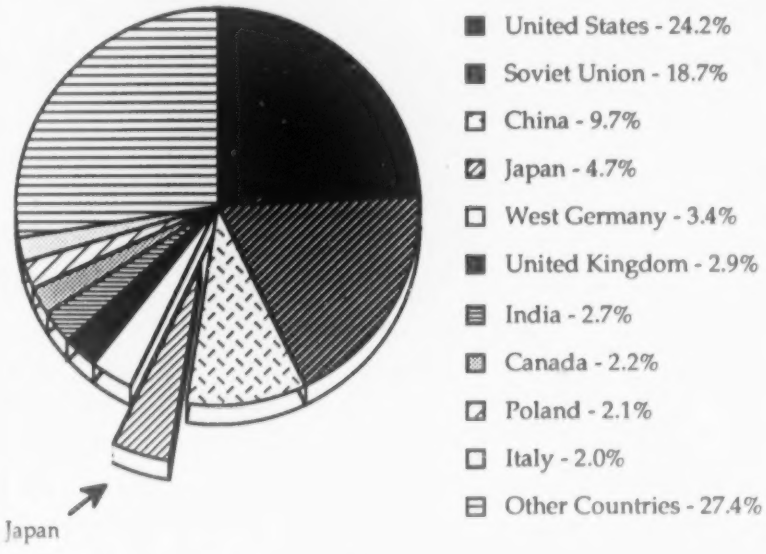
The upcoming meeting will give Tokyo a chance to weigh the sovereignty issues of developing countries as well as to reconsider the import ban's effect on traditional ivory craft workers in Japan, who are running low on their pre-1990 stockpiles. Japan's resulting vote could point to how Tokyo plans to respond to calls for biodiversity -- the preservation of various species, a concept that will be discussed at the UNCED gathering -- if the general theory appears to contrast with specific developing country efforts at sustainable development.

The CITES meeting also could underscore recent steps Tokyo has taken toward subjugating self-interest to global concerns. Under pressure from the United States and world opinion Tokyo reluctantly agreed last year to discontinue trade in two endangered species of sea turtles, the hawksbill and the olive Ridley (see *JEI Report* No. 24B, June 28, 1991), and worked out a plan with the United States to endorse a worldwide moratorium on drift-net fishing (see *JEI Report* No. 45B, December 6, 1991). In both cases Tokyo opted to provide subsidies for such purposes as vocational training and low-interest loans for those looking for new jobs or interested in starting a new business. Threatened U.S. sanctions showed the effectiveness of *gaiatsu*, outside pressure, on environmental matters. U.S. observers contend that *gaiatsu* in general has been most effective when Japanese officials need an external reason to accomplish changes they consider necessary or inevitable.

Differing Approaches to UNCED - Tokyo at least indirectly has considered whether reverse *gaiatsu* would be effective in moving U.S. officials toward an international agreement to set targets aimed at reducing emissions of gases thought to contribute to climate change. A climate change convention containing such targets is one of the goals of the UNCED meeting in early June in Rio de Janeiro, Brazil. Washington remains the sole major industrialized country objecting to targets for carbon dioxide emissions, of which the United States is the main global contributor (see Graph). Initially Tokyo had stood beside the White House in its resistance to targets limiting CO_2 emissions and its call for more scientific evidence that climate change causes harm. But after a late summer 1990 report by the U.N.-sponsored International Panel on Climate Change warned that global mean temperatures could warm by 3 degrees Celsius in the next century, Tokyo decided that the potential harm was sufficient to act. Plus, Japanese leaders weighed European leaders' calls for emissions targets and confidently concluded their country was technologically capable of at least stabilizing

emissions. In October 1990 Tokyo adopted a plan that calls for per-capita CO_2 emissions in the year 2000 not to surpass 1990 levels, with a gradual reduction, if possible, of the country's aggregate CO_2 output to 1990's level of 300 million tons (see *JEI Report* No. 42B, November 2, 1990).

C02 Emission by Countries, 1988



Source: Japan Environment Agency

In a discussion last year about the Bush administration's reluctance to adopt a CO_2 emissions target then Environment Agency director general Kazuo Aichi commented, "I think that since the United States is emitting 24 percent of the world's carbon dioxide gas at this moment there is no way for us [Japan] to stabilize or prevent global warming without action by the United States. So one of the concerns at this moment is how we can get the United States seriously involved. . . . One way is to put some *gaiatsu* on the United States."[4] Other Japanese officials and observers are making similar comments, putting the burden on the United States as the world's largest contributor to CO_2 emissions and one of the biggest per-capita users of energy to commit to an agreement on climate change. An American environmentalist recently wrote in the *Washington Post*: "The general opinion is that unless the United States changes course or the conference's adroit chairman -- Canadian Maurice Strong -- is able to pull a rabbit out of a hat, UNCED will end in a North-South standoff. Blame for this is being placed on Washington."[5]

In what some observers have considered a move to win U.S. compliance for a climate change agreement MITI offered a plan in mid-1991 suggesting that each nation independently pledge to stabilize or reduce emissions at whatever level its leaders feel can be achieved. Compliance with this pledge then would be voluntary and would be reviewed by an international panel, relying on world opinion to achieve follow-through. The "pledge and review" proposal became controversial in Japanese government circles; officials of other agencies worried that MITI -- hesitant to commit Japanese industry to a target of reducing CO_2 net emissions to 1990 levels or below -- had weakened the government's 1990 proposal by pushing the "pledge and review" concept internationally. The "pledge and review" proposal reportedly now is considered by the government to be part of a domestic target and timetable plan, although the Ministry of Foreign Affairs will continue to put forward the voluntary "pledge and review" process for consideration by delegates negotiating the convention on climate change. U.S. officials have questioned whether Japan will back targets for CO_2 emission reductions if the "pledge and review" plan is not included.

One of the concerns of Japanese delegates at the climate change negotiations leading up to the June UNCED meeting is to avoid conditions that would force Japan to restrict emissions of

greenhouse gases to the same degree as nations that are less energy efficient. As can be seen from Table 2, Japan's track record for emissions considered contributors to potential global warming is far superior to most other leading industrial nations. One consideration for decreasing worldwide levels would be to allow pollution trading permits that would be bought by countries with successful pollution control programs; the money then would be used to help a seriously polluting country achieve compliance. Such a plan would resolve another problem being considered at UNCED -- the financing of more impoverished countries that typically tackle industrial development through quicker-and-dirtier means than do countries with the technical and financial resources to invest in environmentally friendly processes.

Table 2: **Emissions Linked to Global Warming in Selected Countries**

	Carbon Dioxide	Nitrogen Oxides	Sulfur Oxides
(overall output in millions of metric tons: 1990)			
United States	1,433	19.5	20.7
Japan	272	1.2	0.8
West Germany	198	2.9	1.2
Great Britain	163	2.4	3.8
(kilograms per unit of $1,000 in gross domestic product: late 1980s)			
United States	324	4.5	4.7
Japan	181	0.8	0.6
West Germany	294	4.3	1.9
Great Britain	317	4.9	7.0
(in metric tons per person: late 1980s)			
United States	5.8	80.4	84.0
Japan	2.2	9.6	6.8
West Germany	3.2	46.7	21.3
Great Britain	2.9	44.0	63.1

Source: Organization for Economic Cooperation and Development

In preliminary UNCED discussions developing nations have stressed their related need for financial help and consideration of how the problems of poverty and population pressures affect a country's ability to look beyond immediate survival concerns to enable planning for sustainable development. Financing options are important for developing countries, not only to help them meet environmental concerns but in some cases to enable them to surmount international debt burdens so they can reach a point where they could consider investing in environmentally beneficial measures.

These elements are included within the main objectives of UNCED, which hopes to:

- Bring together countries that have drafted international conventions on climate change and biodiversity for final resolution and signing.

- Win approval of an Agenda 21, which will contain actions to be taken through the year 2000 and into the 21st century by countries, international agencies and the private sector to integrate environmental and economic concerns in a manner that promotes sustainable development. Among

the suggested targets are the eradication of poverty and access by less fortunate peoples to sustainable livelihoods; the reversal of environmental destruction of renewable resources; and the implementation of a system of incentives and penalties to enforce ties between sustainable resource use and economic behavior.

- Develop a system of financing that will help developing countries achieve the goals of Agenda 21. Also under consideration is a revamping of development policies and economic indicators to incorporate environmental measures.

- Designate international institutions to carry out these plans and provide them with the authority or the financing to do so.

One of the other proposed conventions debated during pre-UNCED meetings would have outlined forest management objectives that encouraged biodiversity, preservation and sustainable development. Japan had been active in trying to win agreement on proposals for such a convention, but developing countries balked; they were concerned about their sovereignty being undermined and were frustrated over industrial countries' attempts to focus primarily on tropical forests instead of looking at practices in temperate and boreal regions as well. The implicit complaint was that industrial countries had no international restrictions in place when their temperate forests were being cut. Since forest management is one of the ways of handling climate change, the issue will continue to be discussed at UNCED.

As this ambitious schedule becomes weighed down by numerous concerns, the success of the conference may lie primarily in the number of countries that voluntarily adopt UNCED's proposals. Already the discussions generated by meetings leading up to the June UNCED forum have had an influence on planning by government and private sectors in Japan relating to both domestic and international environmental policies.

Post-UNCED Implementation Possibilities

Domestically Tokyo has taken a variety of measures aimed at reducing emissions of greenhouse gases and has beefed up its foreign aid program to advance environmental concerns in developing countries. The business community, too, has outlined ways in which the environment will gain from increased corporate attention. Japan's boardrooms have expressed a surprising degree of interest in environmental issues over the past two years or so. Some of this attention has brought forth not just study committees but actual recycling programs and new technologies that patent applicants or holders hope will have international market opportunities.

Comments from business as well as government leaders in the past year have indicated a recognition of an economic benefit to accounting for environmental concerns. In an address in Thailand to a July 1991 forum on business and environment sponsored by the Association of Southeast Asian Nations, for example, the president of Nissan summed up a story about how much cleanup and compensation damages had cost a Japanese polluter with the comment: ". . . I think one of the key perspectives of future business and industrial activities should be the concept that advance preservation of the environment is much more cost effective than trying to deal with a problem after it has occurred."[6]

While Yukata Kume's comments did not refer to the commercial benefits that stemmed from Japanese cars being some of the most energy efficient on the world market in the late 1970s and 1980s, Environment Agency official Saburo Kato told an interviewer recently:

> There is no question that our strict regulations have made Japanese industries more competitive. To conserve energy, for example, they had to develop more efficient production processes. When energy prices rose [in the

> 1970s], Japanese corporations were well-positioned: their products were far more price competitive than the industrial countries that lacked strict pollution controls. But even more important, Japan's environmental regulations were ahead of their time. When other countries adopted similar environmental regulations, such as auto emission standards, Japanese products already satisfied many of them. For example, Toyota and Nissan were ready to export fuel-efficient cars, while their foreign competitors were forced to make costly and abrupt adjustments in their industries. The same should occur with Japan's strict controls on greenhouse gas emissions.[7]

The energy efficiency and air pollution regulations that have won Japan kudos from environmentalists make compliance with new percentage-reduction requirements difficult, however. Many actions already have been taken, and energy use is up while efficiency -- judged by energy consumption per unit of gross national product -- is down (see *JEI Report* No. 23A, June 21, 1991). Moreover, a projected increase in electricity demand of between 2.5 and 3 percent a year over the next decade has sent Japanese utility planners to the drawing boards to come up with a 40 percent increase in generating capacity. Although more nuclear power plants -- considered benign in terms of global warming -- could help Japan meet its emission stabilization target and still provide for enhanced lifestyles and productivity, public resistance remains high.

Another concern of environmental officials is the increased number of motor vehicles on Japanese roads. New diesel emissions restrictions and an emphasis on electric or nongasoline-powered cars and trucks point to Japan's use of both regulatory and administrative guidance to reduce the output of carbon dioxide and nitrogen oxide.

Government-Generated Domestic Measures - Among the various ways Tokyo hopes to achieve stabilization of greenhouse gas emissions are: increased funding for research into alternative energy sources, plus energy-efficient and emissions-control technologies; new recycling legislation; and plans that, if implemented, could touch on almost every phase of life in Japan. An environmental tax of some kind also is under consideration.

- Research and Development - The draft budget for fiscal year 1992 contains Y39.9 billion ($295.6 million at Y135=$1.00) for developing new energy sources that would lessen Japan's use of petroleum products. That amount is up 5.2 percent from the current fiscal year and will be used, among other projects, for further work on solar generators and fuel cells. Regulations are being developed to allow solar energy producers to interface more easily with electric utility operators.

Many industries benefit directly or indirectly from government R&D assistance for environment-related science projects, which in FY 1991 received more than Y438.3 billion ($3.3 billion) in funding (see *JEI Report* No. 36A, September 27, 1991). Among those projects is one to find alternatives to chlorofluorocarbons, a greenhouse gas that Japan and most other industrialized countries have agreed to phase out by the end of 1999. Most Japanese companies using CFCs already are far along in development of alternatives or equipment that could operate with alternatives; automotive manufacturers, for example, expect to quit using CFCs in car air conditioners by 1996.

- Recycling - Not only does legislation passed in 1991 aim at stemming the flow of waste to Japan's rapidly filling landfills (see *JEI Report* No. 17B, May 3, 1991), but it could cut energy requirements by combining raw materials with recycled inputs for new products. In some cases, such as the manufacture of aluminum and steel, use of recycled materials can cut the cost of production. Companies that fail to adequately work at recycling now face a maximum fine of Y500,000 ($3,700), which, by itself, is minimal deterrence. More government control also is expected; local governments, for example, now will be legally responsible for overseeing the separation and the collection of recyclable throwaways.

After passage of the recycling law MITI assigned specific targets in October for two industries to increase their use of recycled materials and recommended that a third industry also boost its rate. By 1994 paper manufacturers are expected to increase by 5 percentage points the amount of recycled paper they add to raw materials for their products. Current paper production features a 50-50 ratio. Manufacturers of glass containers were told to incorporate 55 percent recycled material into their products by fiscal 1994, up from 1989's ratio of 48 percent. Also urged to boost its use of recycled sand, concrete, asphalt and dirt was the construction industry, now averaging about a 30 percent ratio of recyclable inputs. Environment Agency reports also have called for higher recycling rates to help separate recyclable matter from that headed for the landfill or incinerator.

This use of legislated targets is not as unusual as it might seem for a country more associated with its prodding of industry through "administrative guidance." Japan attained some of its current success in air quality management through hard-nosed government regulation plus tax incentives and government backing for research and development. In a 1991 report on the environment industry the Paris-based Organization for Economic Cooperation and Development noted that specific legislation drove demand in Japan in the 1970s and 1980s for flue-gas desulfurization equipment.[8] Legislation not only encompassed emissions standards but allowed those who suffered from pollution to sue suspected polluting industries for compensation (see *JEI Report* No. 9A, March 8, 1991).

- Other Recommendations - Among the more difficult goals to achieve might be those designed to realign Japan's transportation system to encourage more use of shipping and railroads rather than trucking (see *JEI Report* No. 19B, May 17, 1991). The Ministry of Construction's strong influence is expected to impede follow-through of a plan under development by the Ministry of Transport to shift freight traffic from roads to more energy-efficient trains and ships.

Another energy-efficiency proposal would encourage the transformation of all Japan's 24-hour-a-day incinerators into cogeneration facilities that would have a combined generating capacity of 2.5 million kilowatts. As recommended by a panel affiliated with the Ministry of Health and Welfare the measure would result in estimated savings of 110,000 kiloliters of crude oil annually, equivalent to about a 4 million-ton reduction in CO_2 emissions. The recommendation would mean upgrading 295 of the 397 full-time incinerators since those currently do not produce electricity as a by-product. A study by Boston, Massachusetts-based Charles River Associates noted that although Japan has almost six times the number of incinerators that America has, their total electricity output is nearly seven times lower.[9] Other sources of wasted heat that the Environment Agency has said might be tapped in the future are subway systems and wastewater treatment plants.

Agriculture's high use of nitrogen-based fertilizers in Japan -- 15 tons per square kilometer compared to this country's figure of 5.5 tons, according to OECD calculations for 1988 -- also could face constraints in the future from the double whammy of concern over global warming and water pollution fears. Ways to decrease the production of methane are being studied as part of Japan's October 1990 "Action Plan to Arrest Global Warming," which calls for methane emissions to be stabilized at 1990 levels. Increased planting of carbon dioxide-absorbing greenery additionally counts as one of the ways Japan hopes to counter global warming.

- Taxes - The Ministry of Finance in cooperation with the Environment Agency reportedly began studying early last year various fuel, lumber import and industrial waste taxes as ways to alter behaviors tied to global warming. If imposed, the proceeds from such an environmental tax would go toward financing Japan's commitments to UNCED and its own international activities aimed at preventing global warming. Consideration of some type of environmental tax followed an agreement made at a January 1991 meeting of environmental officials of OECD countries.

Discussion of the tax comes amid a general MOF review of Japan's tax system, but the likelihood of its imposition is growing slimmer with the advent of more pressing demands (see *JEI*

Report No. 1B, January 10, 1992). Moreover, if UNCED participants fail to achieve agreement on financial incentives, Japan is unlikely to do more than expand slightly its current commitments. Japanese business leaders also have protested that the tax would be an extra burden; they have suggested that their efforts in technology transfers be weighed as an alternative way of helping developing countries.

Business Activities - A global environmental charter and a 10-point list of guidelines for Japanese companies with offshore operations has put Keidanren (Japan Federation of Economic Organizations) at the forefront of persuading the business community of the benefits of incorporating environmental measures into corporate thinking. In the past two years or so Japanese corporations also have become more interested in smoothing relations with Americans through increased attention to corporate giving. These factors, plus internal staff interest, also coincided with the Japanese government's vow to take a lead in international environmental issues.

Most of the attention focused on the environment is linked to business activities and not to philanthropy in a general sense. "The whole role of corporate philanthropy is very new in Japan," notes Lori Forman, who, as a representative of The Nature Conservancy, has made presentations to Keidanren on possible conservation steps that corporations could take. "They want some kind of formula [for example, donations tied to paper consumption or fleet consumption of gasoline] to link their donations to. The idea of just giving to help is not as well-founded."[10]

In its global environmental charter the powerful business organization stresses the ethics and conservation payoffs of responding to environmental issues. Keidanren also has set up a study team to review various conservation ideas, including debt-for-nature swaps. And, while not bannered as a prime reason behind corporate environmental concerns, no doubt the increased marketability of environmentally correct services and products is a welcomed benefit.

- Keidanren Environmental Charter and Guidelines - Released in April 1991 Keidanren's charter mirrors UNCED concerns, stating in part:

> The task before us is not merely one of rethinking the problems caused by the pursuit of affluence in a culture that encourages mass consumption; we must also come to grips with the global problems of poverty and population increase, aiming to hand over to future generations a healthy environment that allows sustainable development on a global scale. . . . We must aim to construct a society whose members cooperate together on environmental problems, a society where sustainable development on a global scale is possible, where companies enjoy a relationship of mutual trust with local citizens and consumers, and where they vigorously and freely develop their operations while preserving the environment. Each company must aim at being a good global corporate citizen, recognizing that grappling with environmental problems is essential to its own existence and its activities.[11]

Among the charter's recommendations are that companies: work to protect the environment and conserve resources; ensure their products' environmental soundness so that workers' and consumers' safety and health are protected; institute internal methods for handling environmental issues and establish companywide environmental regulations; incorporate environmental impact assessments of some type for new sites and procedures; consider downstream recycling potential when purchasing or planning products; develop technologies and services in tune with environmental conservation; develop ways to transfer technologies and know-how overseas to further the spread of environmental preservation; acknowledge problems and act to minimize their impact, including in cases occurring outside the company's responsibility; work to educate employees and the public on environmental issues and activities; and encourage employee and corporate contributions to community and public activities that enhance the environment.

The 10 environmental guidelines for overseas operations, introduced in 1990 with a document outlining Keidanren's *Basic Views of Global Environmental Problems* and later attached to the charter, state that companies should: have a constructive attitute toward environmental protection and be willing to fully explore issues with concerned parties; at a minimum obey environmental standards of the host country but also apply Japanese standards in managing hazardous materials; conduct complete environmental assessments before starting an activity overseas; work with local parties at the site of operations and cooperate in transferring environment-related technologies and expertise; set up an environmental management system with a person in charge, one preferably who has been trained for the job; routinely inform local citizenry about environmental issues at the site; deal with environment-related controversies by paying attention to social and cultural concerns but maintaining a scientific and rational manner; cooperate in promoting the host country's scientific environmental approaches; publicize at home and overseas the corporation's environmental activities; and work with headquarters to increase understanding of local environmental concerns. The home office also is urged to set up a support system of experts who could be dispatched to overseas locations to help solve environmental problems.

To emphasize that its interest in the environment is more than skin deep, Keidanren recently surveyed major industries to monitor implementation of environmentally linked suggestions (see Table 3). This interest, however, does not mean that Keidanren has lost its economic soul. Mention of increased taxes for global international concerns, such as the environment, still has the power to raise hackles in Keidanren's boardroom.

- Debt-for-Nature Swaps - Although the benefits of debt-for-nature swaps have been questioned on many fronts, including in a recent study by the General Accounting Office,[12] the concept continues to be studied as a method of relieving a developing country of some of its debt burden while at the same time contributing to environmental conservation in that country. Bank of Tokyo, Ltd. became the first Japanese corporation to fund a debt-for-nature swap when it agreed last summer to extend $1 million to the World Wildlife Fund, which would handle the purchase of discounted developing country debt and the setting up of environmentally beneficial programs with the proceeds. The first outlay of $200,000 was earmarked for environmental programs, such as the preservation of forests and coral reef, in the Philippines. The remaining $800,000 is expected to be used on conservation projects in Latin America.

Taking another tack is the Public Trust Fund for Conservation of the Global Environment, set up by seven trust banks, led by Mitsui Trust & Banking Corp., and joined by Daiwa Bank, Ltd. Money from the trust, funded at an initial level of $144,000, will be used for tree-planting and other projects in Latin America and Southeast Asia. The Japanese owner of the 7-Eleven franchise, Ito-Yokado Co., Ltd., boosted the fund by half with its subsequent contribution of $72,000.

Whether through opportunities generated by Japan's foreign aid program (see below), trade incentives or an attempt to improve their "green" image, Japanese firms have tackled a variety of environmentally related projects overseas. These programs are not necessarily considered preservation or conservation attempts by environmentalists. Examples of controversial activities include Nissho Iwai Corp.'s plan to work with a Brazilian development company and paper and pulp manufacturers to plant eucalyptus trees in an Amazon River basin; half the trees would be cut for production, although the remainder would be kept for a natural forest. Similarly, a Mitsubishi Corp. reforestation project undertaken with Yokohama National University and a Malaysian university may not entirely wipe out criticism of the trading company for what some environmentalists contend is its support for indiscriminate logging of Malaysian tropical forests. In the drier but less controversial climate of the Sahara desert five Japanese firms hope to establish a greenbelt area that can be cultivated. Undertaking a feasibility study of the project, estimated to cost Y90 billion ($666.7 million), are Shimizu Corp., Taisei Corp. and Obayashi Corp.; these big contractors would receive support on solar battery technology from Tonen Corp. and irrigation know-how from Kubota Corp.

Table 3: **Environmental Planning and Implementation Efforts in Industry**

Electric Utilities	Increased recycling of coal ash planned; about 58 percent now is recycled. R&D looking at using coal ash for cement, fertilizer. Encouragement of municipal use of cogeneration systems by providing technical assistance and arranging to buy excess generated electricity.
Oil	Studying how to refine crude oil and trying to determine how much energy is wasted in the process.
Steel	Continued research into energy-efficient processing; currently over 90 percent of slag and 95 percent of coal dust is recycled.
Nonferrous Metals	Continue using waste material from other industries for inputs. Make slag into materials for concrete.
Chemicals	Set up a study group that is looking into recycling methods and more energy-efficient processes.
Paper	Continued efforts to recycle high-quality paper. Will increase the percent of recycled paper used in producing new paper products from 50 to 55 percent.
Automotive	Setting up a Japan Automobile Manufacturers Association task force to design processes that reduce waste in production. Cooperating with municipalities to collect abandoned cars. Introducing a system that requires dealers to take back used vehicles from owners who want to get rid of them.
Electric Machinery	Task force formed to examine cooperation among municipalities, appliance makers and distributors for accepting old appliances that otherwise would be thrown out. Pilot project is under way in Tokyo area neighborhoods. R&D into new types of appliances that are easier to repair so that buyers can retain them longer.
Batteries	Mercury batteries to be phased out.
Plastics	PET (polyethylene terephthalate) bottles being marked for recycling. New association studying styrofoam recycling.
Construction	Setting up intermediate recycling facility, with ultimate target of achieving 80 percent recycled waste materials. Encouraging construction sites not to mix materials to help in the recycling process.
Retail Stores	Manufacturers urged to produce more recyclable packaging. Compliance program to be introduced for recycling milk cartons, PET bottles, aluminum cans and trays. Guidelines to be expanded for recycling and collecting recyclable trays. Manufacturers to be urged to use safer, more recyclable materials for trays used to package 73 items that cannot be adapted to use for vegetable, fish or meat products. Considering a charge for shopping bags with refunds given for returned bags. Encouraging use of recycled paper and simplified wrapping of purchases.

Source: Keidanren, *Report of Keidanren Subcommittee on Recycling*, December 1991.

Development of this greenbelt could give a boost to Japan's environmental service industry, which so far has a relatively low profile in the world market (see Table 4). The $200-billion-a-year environmental products and services industry is projected to enjoy 5.5 percent annual growth, according to a 1991 OECD estimate. UNCED chairman Maurice Strong stressed the trade and competitiveness factors of environmental issues in a November 1991 *Newsweek* article in which he referred to MITI's 100-year action plan for decreasing Japan's CO_2 emissions as based on a premise "that the environment is going to be the driving force of the economy and the source of most new comparative advantage in industrial opportunity."[13]

Table 4: **Selected Environmental Trade* of OECD Countries, 1990**

	North America	Europe	Japan	Total OECD
Equipment	74%	76%	79%	76%
Water and Effluent Treatment	24	34	22	29
Waste Management	25	15	22	21
Air Quality Control	12	17	25	15
Other (noise, land remediation)	13	10	10	11
Services	26	24	21	24
Total	100	100	100	100

*Based on estimated share of value of production.

Source: Organization for Economic Cooperation and Development

Japan's current strength in this field rests on its air pollution control products, not surprising given its successes in this area. In overall terms the OECD has calculated that on a value basis Japan exports about 18 percent of its environmental equipment output but that import penetration is below 3 percent of consumption.[14]

International Measures and Foreign Aid - The initial FY 1992 general account budget includes a whopping 86.3 percent increase, to Y1.4 billion ($10.4 million), for Japan's Green Aid Plan, conceived to promote the transfer of environmental technologies to developing countries. The measure is part of a foreign aid budget that will be up 7.8 percent, even though total general account spending will rise only 2.7 percent (see *JEI Report* No. 1B, January 10, 1992). Another environment-related component of the foreign aid budget sets aside Y370 million ($2.7 million) to help assure that aid projects would have an environmental assessment before activities begin. Reports also indicate that the U.N. Environment Program will get Y2.5 billion ($18.5 million) in the upcoming fiscal year and the International Tropical Timber Organization Y1.3 billion ($9.6 million). Japan also contributes funds used by other multilateral forums, such as the Asian Development Bank, for environmental projects. Last summer the Foreign Ministry promised $1.5 million to UNCED, the second-largest pledge at that time next to Sweden's $3 million contribution. Tokyo unveiled its first large-scale program for environmental funding in 1989 when then Prime Minister Sosuke Uno announced a targeted three-year plan to commit Y300 billion ($2.2 billion) in foreign aid for environmental projects.

Tokyo considers foreign aid programs to be one of the main ways it can help developing countries achieve some of the goals being proposed for UNCED. Bilateral assistance to developing

countries for environmentally linked projects -- such as pollution control, afforestation and forest conservation, urban sanitation, water resource development and disaster prevention -- totaled about Y22.7 billion ($168.2 million) in grants and Y92 billion ($681.5 million) in loans in FY 1989. As part of its technical assistance program approximately 300 trainees were brought to Japan that year, while roughly 150 Japanese experts were sent to projects abroad. This training was in addition to that provided by the Japanese Overseas Cooperation Volunteers. (For an overview of Japan's foreign aid program, see *JEI Report* No. 45A, December 6, 1991.)

Not all this assistance has won plaudits from environmentalists, however. In response to past criticism that various Japanese aid programs had a harmful effect on the environment the Foreign Ministry last year adopted new guidelines calling for more attention to possible environmental problems when a project is being considered for funding, including potential adverse impacts on indigenous peoples and others living near a proposed project site. Specific guidelines drafted by the Japan International Cooperation Agency already call for attention to environmental concerns on dam construction; the Foreign Ministry's new references deal with road building, agricultural development and construction of power plants. As of this year projects will be checked to determine possible damages to historic sites as well as the environment and public health. The new guidelines also advise aid officials to take a more skeptical look at projects requested by developing countries and will ask for revision of items expected to cause environmental problems. Future guidelines will address railroad, airport and harbor projects as well as water supply systems and gas pipelines.

An effort to go beyond Japan's current bilateral and multilateral assistance programs also is under way. Former Prime Minister Noboru Takeshita, named as a special adviser to the government for UNCED, has set up a wise men's conference, which will meet in mid-April in Tokyo. The main topic will be ways of providing financial assistance to developing countries to enable them to respond to UNCED measures. Among the invited participants are former British Prime Minister Margaret Thatcher, past World Bank presidents Robert McNamara and Barber Conable, Singapore's ex-Prime Minister Lee Kuan Yew and former West German Chancellor Willy Brandt. Under consideration is the feasibility of a new international financial organization that will stress developing countries' needs for sustainable development. According to rough estimates, $60 billion a year will be required for setting up successful sustainable development programs. Given the competing demands around the world for money, the wise men's conference may have trouble staying focused on environmental concerns.

Outlook

Even if UNCED does not result in treaties on climate change and biodiversity, the discussions generated in advance of the conference have prompted Japan and other nations to carry out internal audits of their ability to achieve reduced emissions of gases. Given recent increases in energy consumption worldwide, this exercise alone no doubt will result in beneficial changes.

To achieve even stabilized emissions of carbon dioxide in the face of continued economic growth Japan might have to take more drastic actions than the United States would, since Americans have yet to achieve Japan's energy efficiency levels. The results of incremental steps might not be apparent for several years, though, and during that time economic concerns could squelch needed investment in environmentally friendly processes and equipment unless the benefits of trade in such products and services begin to counterbalance routine economic concerns.

Ways of drawing more attention to the importance of the environment in terms of the economy also will be on the agenda at the June UNCED forum. The International Monetary Fund, the World Bank and the U.N. Statistics Office are studying ways to implement a revised system of national accounts; a proposal is expected for UNCED debate. Under consideration is a system for environmentally adjusted economic accounts, which would incorporate environmental costs into the calculations of a country's gross domestic product. Currently, most countries' methods of valuing their output of goods and services do not reflect environmental degradation but, conversely, count

investment to counteract any environmental harm done. Japan, no exception, has shown a small degree of interest in this subject. Discussion of a revised national accounting system -- just like the debates that have gone into UNCED drafts for climate change and biodiversity conventions -- threaten a shake-up in the way the world is accustomed to operating. Such additions to the menu for a new world order, however, might end up being too much to contemplate this year.

For more information, contact **Pat Murdo**.

NOTES

[1]US/Japan Economic Agenda, "Agenda Initiates U.S.-Japan Energy and Environment Project," No. 11, March 1990.

[2]Interview with Richard Forrest, National Wildlife Federation, January 2, 1992, Washington, D.C.

[3]One such article in the September-October 1991 issue of the relatively mainstream environmental magazine *Audubon* by Ted Williams, "Japan Bashing Reconsidered," raked Japan over the coals for past and present practices regarding whales, sea turtles, drift-net fishing and trade in tropical hardwood. See also *JEI Reports* No. 10A, March 9, 1990, and No. 40B, October 25, 1991.

[4]Interview with former Environment Agency director general Kazuo Aichi, *Japan Economic Survey*, November 1991, pp. 6-11.

[5]Jessica Mathews, "Countdown to Earth Summit," *Washington Post*, December 6, 1991.

[6]Speech by Yutaka Kume to Regional Forum on Business and Environment of the Association of Southeast Asian Nations, Bangkok, Thailand, July 22, 1991.

[7]"Environmental Moves to Inspire," *EcoTrends*, published as an advertising supplement to *Nikkei Weekly*, December 14, 1991, p. 17.

[8]Organization for Economic Cooperation and Developmnent, *The OECD Environment Industry: Trends and Issues* (Paris, France: 1991).

[9]Robert Eller, "Plastics Recycling and Solid Waste Management in Japan," paper presented to the Modern Plastics Executive Forum, New York, New York, April 22, 1991.

[10]Telephone interview with Lori Forman of The Nature Conservancy, December 23, 1991.

[11]Keidanren Global Environmental Charter, April 23, 1991.

[12]In *Developing Country Debt: Debt Swaps for Development and Nature Provide Little Debt Relief* (Washington, D.C.: December 1991) the General Accounting Office noted that the amount of debt swapped by severely indebted countries did not quite reach 0.05 percent of their total debt and 0.15 percent of their commercial debt.

[13]"A Greener Global Economy," *Newsweek*, November 25, 1991, p. 54.

[14]OECD, *op. cit.*

* * * * * *

The views expressed in this report are those of the author and do not necessarily represent those of the Japan Economic Institute.